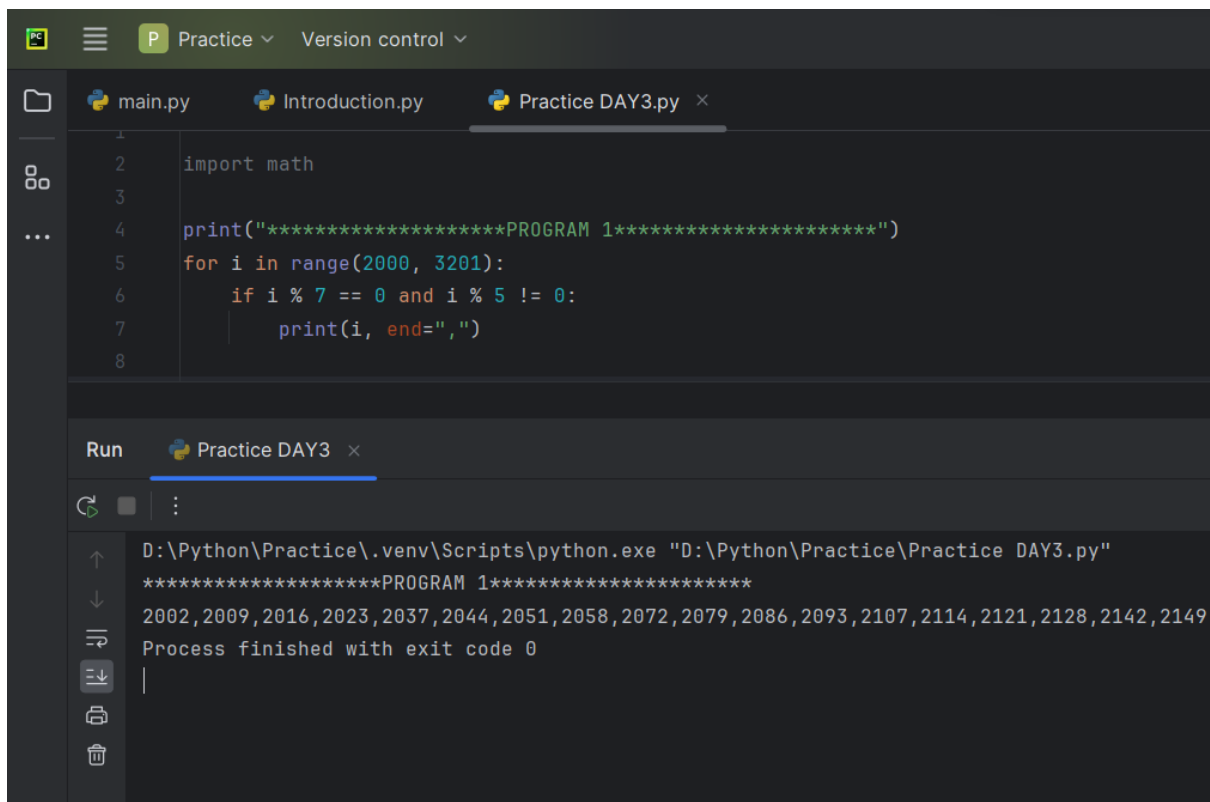


PRACTICE DAY -3

Question:1

Write a program which will find all such numbers which are divisible by 7 but are not a multiple of 5, between 2000 and 3200 (both included). The numbers obtained should be printed in a comma-separated sequence on a single line.



The screenshot shows a Python IDE with a file named 'Practice DAY3.py' open. The code in the editor is as follows:

```
1
2 import math
3
4 print("*****PROGRAM 1*****")
5 for i in range(2000, 3201):
6     if i % 7 == 0 and i % 5 != 0:
7         print(i, end=",")
8
```

Below the editor, the 'Run' tab is active, showing the command executed and the output:

```
D:\Python\Practice\.venv\Scripts\python.exe "D:\Python\Practice\Practice DAY3.py"
*****PROGRAM 1*****
2002,2009,2016,2023,2037,2044,2051,2058,2072,2079,2086,2093,2107,2114,2121,2128,2142,2149
Process finished with exit code 0
```

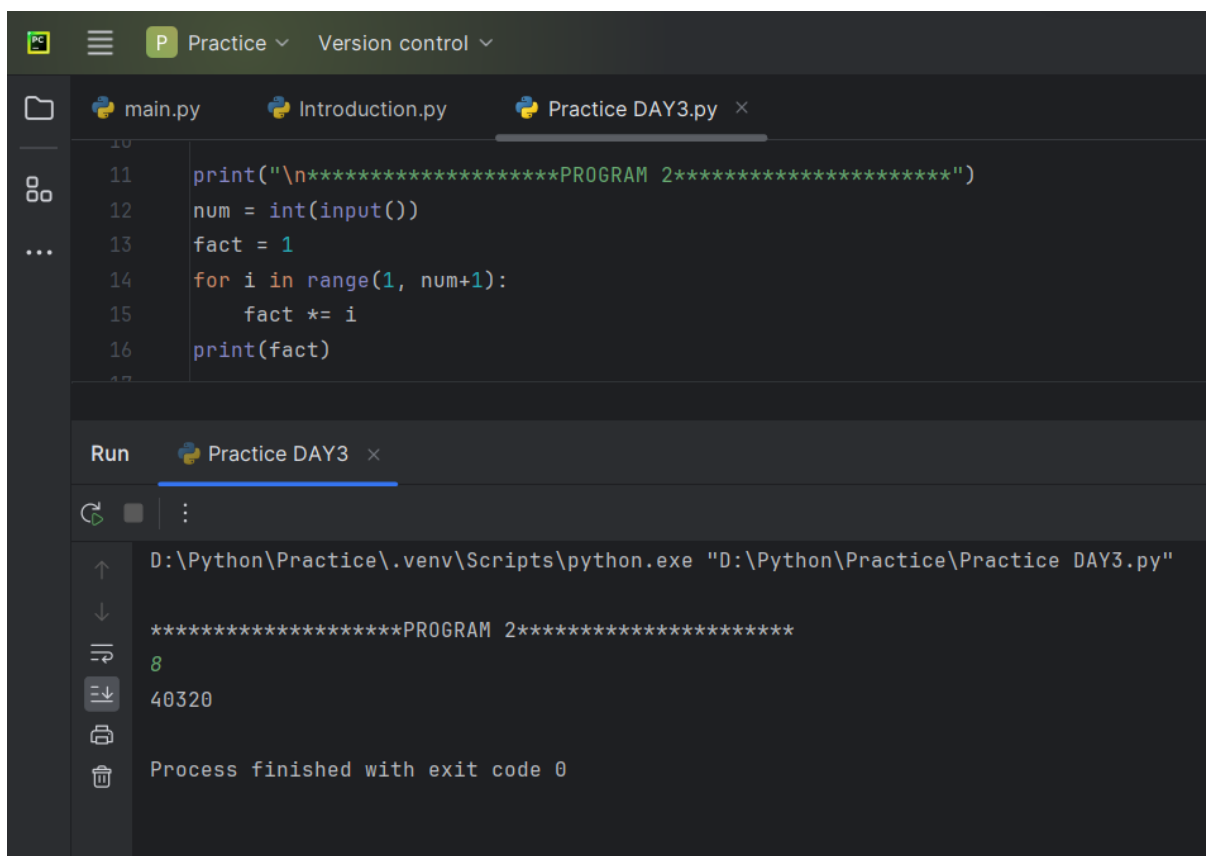
Question:2

Write a program which can compute the factorial of a given numbers.

The results should be printed in a comma-separated sequence on a single line.

Suppose the following input is supplied to the program: 8

Then, the output should be: 40320



```
10
11 print("\n*****PROGRAM 2*****")
12 num = int(input())
13 fact = 1
14 for i in range(1, num+1):
15     fact *= i
16 print(fact)
```

Run Practice DAY3

D:\Python\Practice\.venv\Scripts\python.exe "D:\Python\Practice\Practice DAY3.py"

*****PROGRAM 2*****

8

40320

Process finished with exit code 0

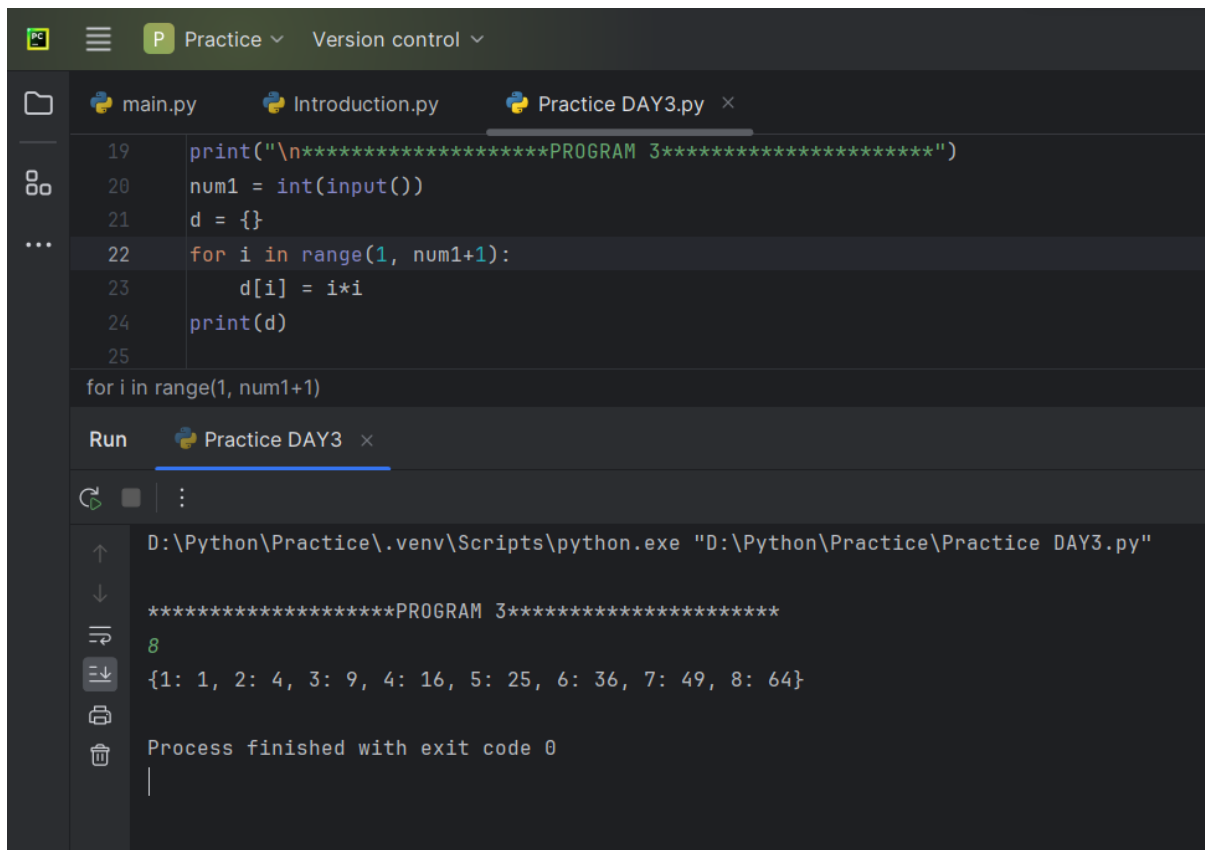
Question:3

With a given integral number n, write a program to generate a dictionary that contains (i, i*i) such that i is an integral number between 1 and n (both included). and then the program should print the dictionary.

Suppose the following input is supplied to the program:8

Then, the output should be:

{1: 1, 2: 4, 3: 9, 4: 16, 5: 25, 6: 36, 7: 49, 8: 64}



The screenshot shows a Python IDE with a file named 'Practice DAY3.py' open. The code in the editor is as follows:

```
19 print("\n*****PROGRAM 3*****")
20 num1 = int(input())
21 d = {}
22 for i in range(1, num1+1):
23     d[i] = i*i
24 print(d)
25
```

Below the editor, the 'Run' button is clicked, and the output is displayed in the console. The output shows the program header, the input '8', and the resulting dictionary.

```
D:\Python\Practice\.venv\Scripts\python.exe "D:\Python\Practice\Practice DAY3.py"

*****PROGRAM 3*****
8
{1: 1, 2: 4, 3: 9, 4: 16, 5: 25, 6: 36, 7: 49, 8: 64}

Process finished with exit code 0
```

Question:4

Write a program which accepts a sequence of comma-separated numbers from console and generate a list and a tuple which contains every number.

Suppose the following input is supplied to the program:

34,67,55,33,12,98

Then, the output should be:

['34', '67', '55', '33', '12', '98']

('34', '67', '55', '33', '12', '98')

```
26
27 print("\n*****PROGRAM 4*****")
28 num3 = input()
29 L = num3.split(",")
30 T = tuple(L)
31 print("list: ", L)
32 print("tuple: ", T)
33
```

Run Practice DAY3 x

D:\Python\Practice\.venv\Scripts\python.exe "D:\Python\Practice\Practice DAY3.py"

```
*****PROGRAM 4*****
34,67,55,33,12,98
list: ['34', '67', '55', '33', '12', '98']
tuple: ('34', '67', '55', '33', '12', '98')
Process finished with exit code 0
```

Question 5:

Write a program that calculates and prints the value according to the given formula:

$$Q = \text{Square root of } [(2 * C * D)/H]$$

Following are the fixed values of C and H: C is 50. H is 30.

D is the variable whose values should be input to your program in a comma-separated sequence.

Example

Let us assume the following comma separated input sequence is given to the program: 100,150,180

The output of the program should be: 18,22,24

The screenshot shows a code editor with three tabs: 'main.py', 'Introduction.py', and 'Practice DAY3.py'. The 'Practice DAY3.py' tab is active, displaying the following Python code:

```
35 print("\n*****PROGRAM 5*****")
36 C = 50
37 H = 30
38 D = input()
39 D = D.split(",")
40 for d in D:
41     d = int(d)
42     print(int(math.sqrt((2*C*d)/H)), end=",")
43
```

Below the code editor, the 'Run' button is clicked, and the output is displayed in a terminal window. The terminal shows the command executed and the resulting output:

```
D:\Python\Practice\.venv\Scripts\python.exe "D:\Python\Practice\Practice DAY3.py"
*****PROGRAM 5*****
100,150,180
18,22,24,
Process finished with exit code 0
```

Question:6

Write a program which takes 2 digits, X, Y as input and generates a 2-dimensional array. The element value in the i-th row and j-th column of the array should be $i*j$.

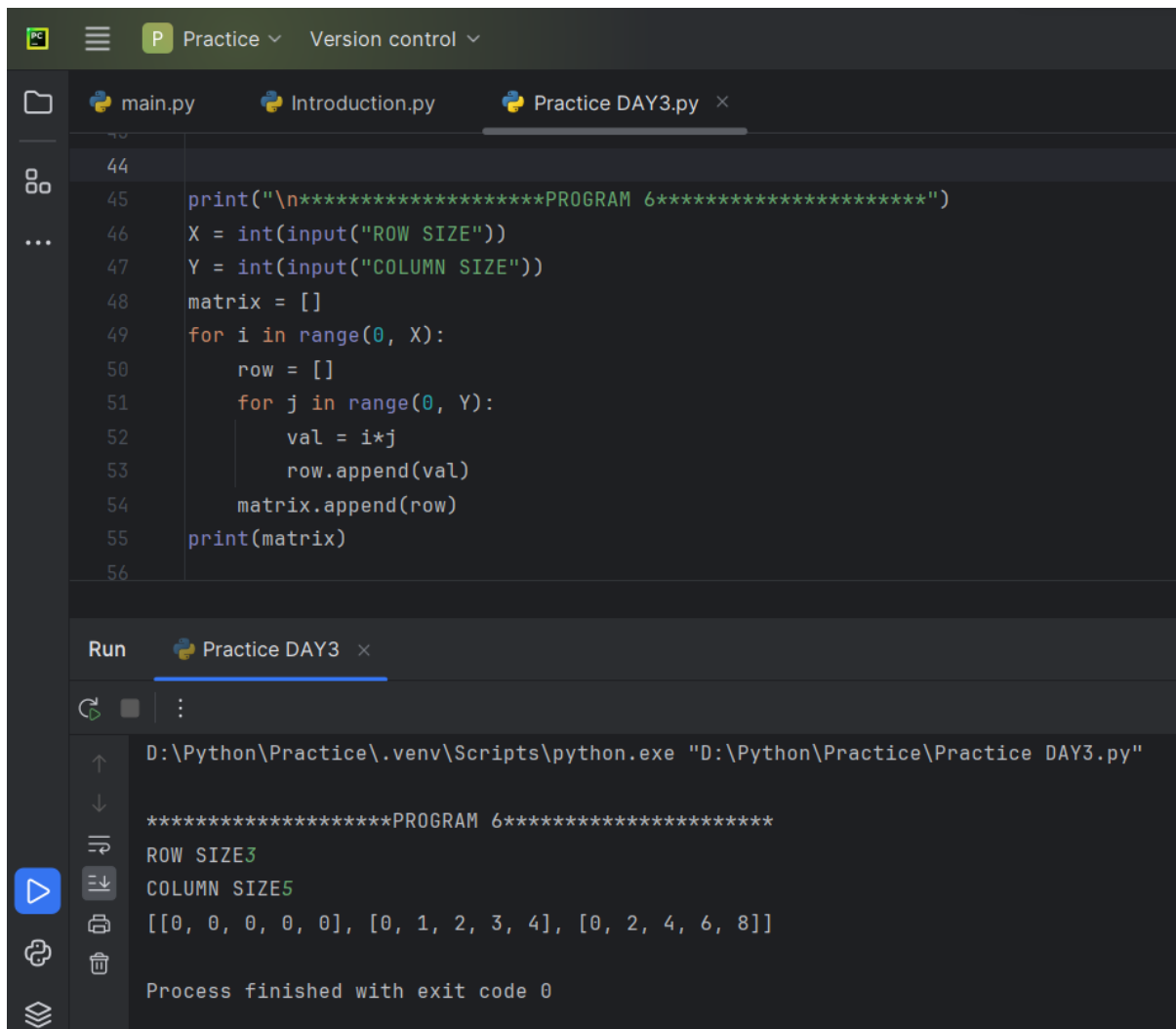
Note: $i=0, 1, \dots, X-1$; $j=0, 1, \dots, Y-1$.

Example

Suppose the following inputs are given to the program: 3,5

Then, the output of the program should be:

[[0, 0, 0, 0, 0], [0, 1, 2, 3, 4], [0, 2, 4, 6, 8]]



```
44
45 print("\n*****PROGRAM 6*****")
46 X = int(input("ROW SIZE"))
47 Y = int(input("COLUMN SIZE"))
48 matrix = []
49 for i in range(0, X):
50     row = []
51     for j in range(0, Y):
52         val = i*j
53         row.append(val)
54     matrix.append(row)
55 print(matrix)
56
```

Run Practice DAY3

```
D:\Python\Practice\.venv\Scripts\python.exe "D:\Python\Practice\Practice DAY3.py"

*****PROGRAM 6*****
ROW SIZE3
COLUMN SIZE5
[[0, 0, 0, 0, 0], [0, 1, 2, 3, 4], [0, 2, 4, 6, 8]]

Process finished with exit code 0
```

Question:7

Write a program that accepts a comma separated sequence of words as input and prints the words in a comma-separated sequence after sorting them alphabetically.

Suppose the following input is supplied to the program:

without,hello,bag,world

Then, the output should be:

bag,hello,without,world

```
57  
58 print("\n*****PROGRAM 7*****")  
59 word = input()  
60 wrdLst = word.split(",")  
61 res = sorted(wrdLst)  
62 print(".".join(res))  
63
```

Run Practice DAY3

D:\Python\Practice\.venv\Scripts\python.exe "D:\Python\Practice\Practice DAY3.py"

*****PROGRAM 7*****

without,hello,bag,world

bag,hello,without,world

Process finished with exit code 0

Question: 8

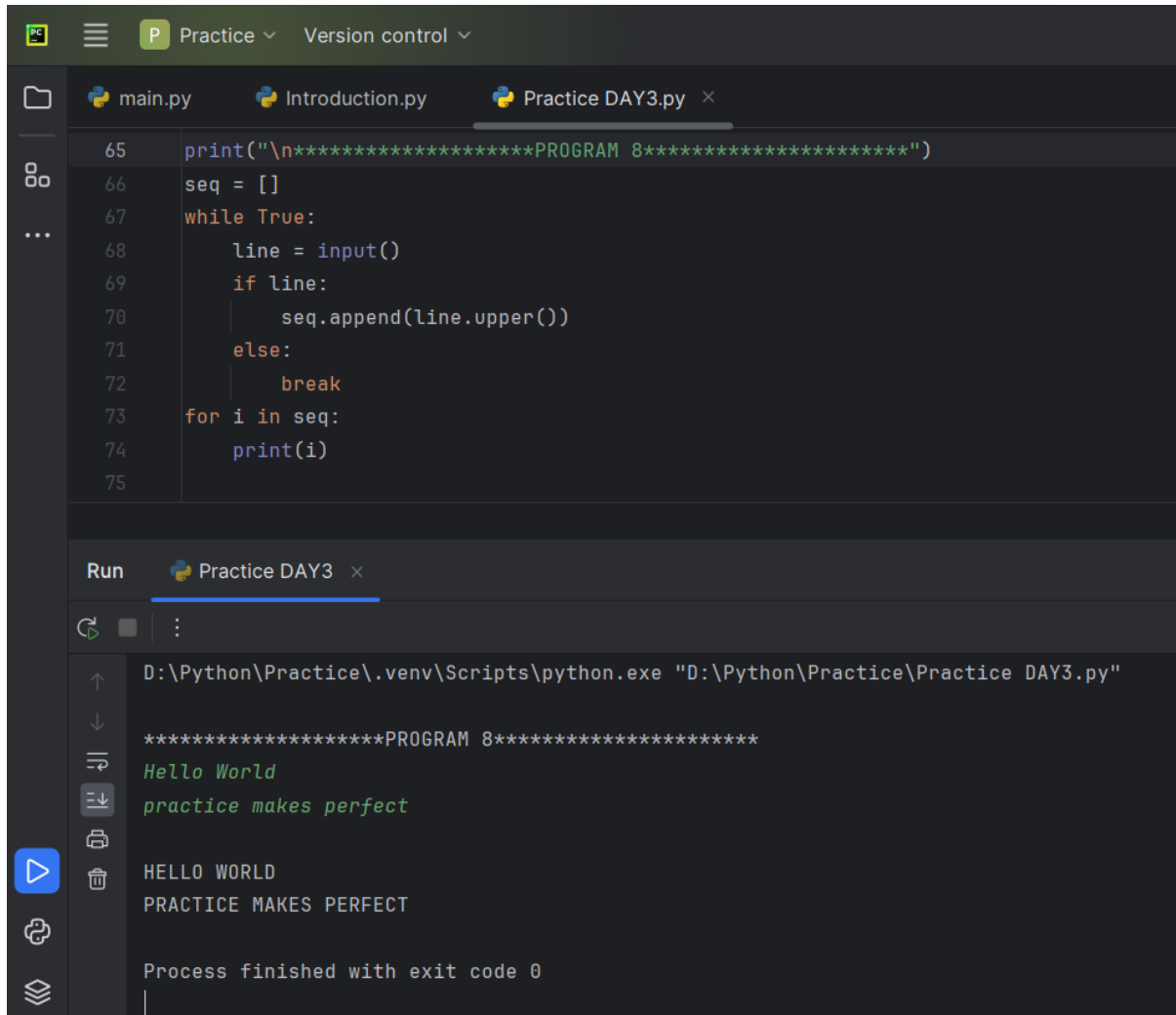
Write a program that accepts sequence of lines as input and prints the lines after making all characters in the sentence capitalized.

Suppose the following input is supplied to the program: Hello world

Practice makes perfect

Then, the output should be: HELLO WORLD

PRACTICE MAKES PERFECT



The screenshot shows a code editor with a dark theme. The top bar indicates the project name 'Practice' and 'Version control'. The editor has three tabs: 'main.py', 'Introduction.py', and 'Practice DAY3.py'. The code in 'Practice DAY3.py' is as follows:

```
65 print("\n*****PROGRAM 8*****")
66 seq = []
67 while True:
68     line = input()
69     if line:
70         seq.append(line.upper())
71     else:
72         break
73 for i in seq:
74     print(i)
75
```

Below the editor is a 'Run' panel for 'Practice DAY3'. It shows the command executed: `D:\Python\Practice\.venv\Scripts\python.exe "D:\Python\Practice\Practice DAY3.py"`. The output is:

```
*****PROGRAM 8*****
Hello World
practice makes perfect
HELLO WORLD
PRACTICE MAKES PERFECT
Process finished with exit code 0
```

Question:9

Write a program that accepts a sequence of whitespace separated words as input and prints the words after removing all duplicate words and sorting them alphanumerically.

Suppose the following input is supplied to the program:

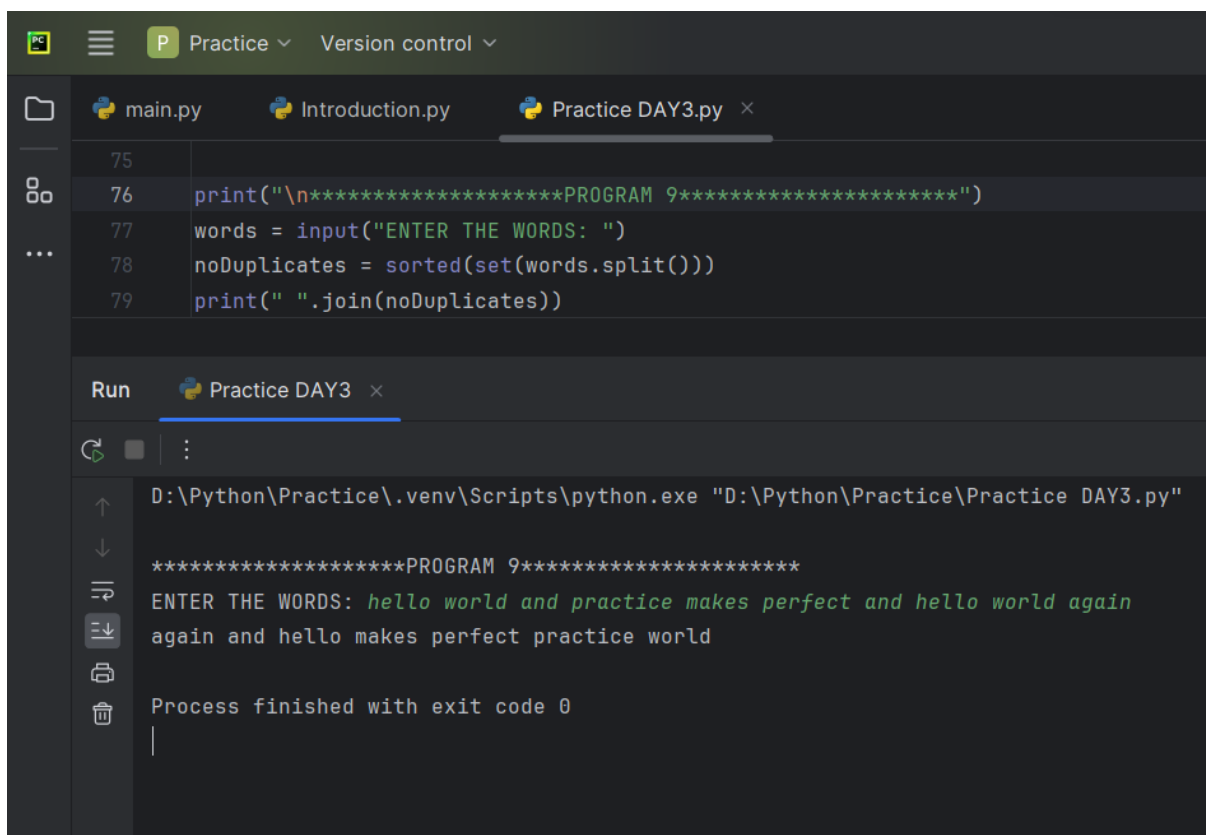
hello world and practice make perfect and hello world again

Then, the output should be:

again, and hello makes perfect practice world

Hints: In case of input data being supplied to the question, it should be assumed to be a console input.

We use set container to remove duplicated data automatically and then use sorted () to sort the data.



The screenshot shows a Python IDE with a file named 'Practice DAY3.py' open. The code in the editor is as follows:

```
75  
76 print("\n*****PROGRAM 9*****")  
77 words = input("ENTER THE WORDS: ")  
78 noDuplicates = sorted(set(words.split()))  
79 print(" ".join(noDuplicates))
```

Below the editor, the 'Run' tab is active, showing the execution command and output:

```
D:\Python\Practice\.venv\Scripts\python.exe "D:\Python\Practice\Practice DAY3.py"  
  
*****PROGRAM 9*****  
ENTER THE WORDS: hello world and practice makes perfect and hello world again  
again and hello makes perfect practice world  
  
Process finished with exit code 0
```

Question:10

Write a program which accepts a sequence of comma separated 4 digit binary numbers as its input and then check whether they are divisible by 5 or not. The numbers that are divisible by 5 are to be printed in a comma separated sequence.

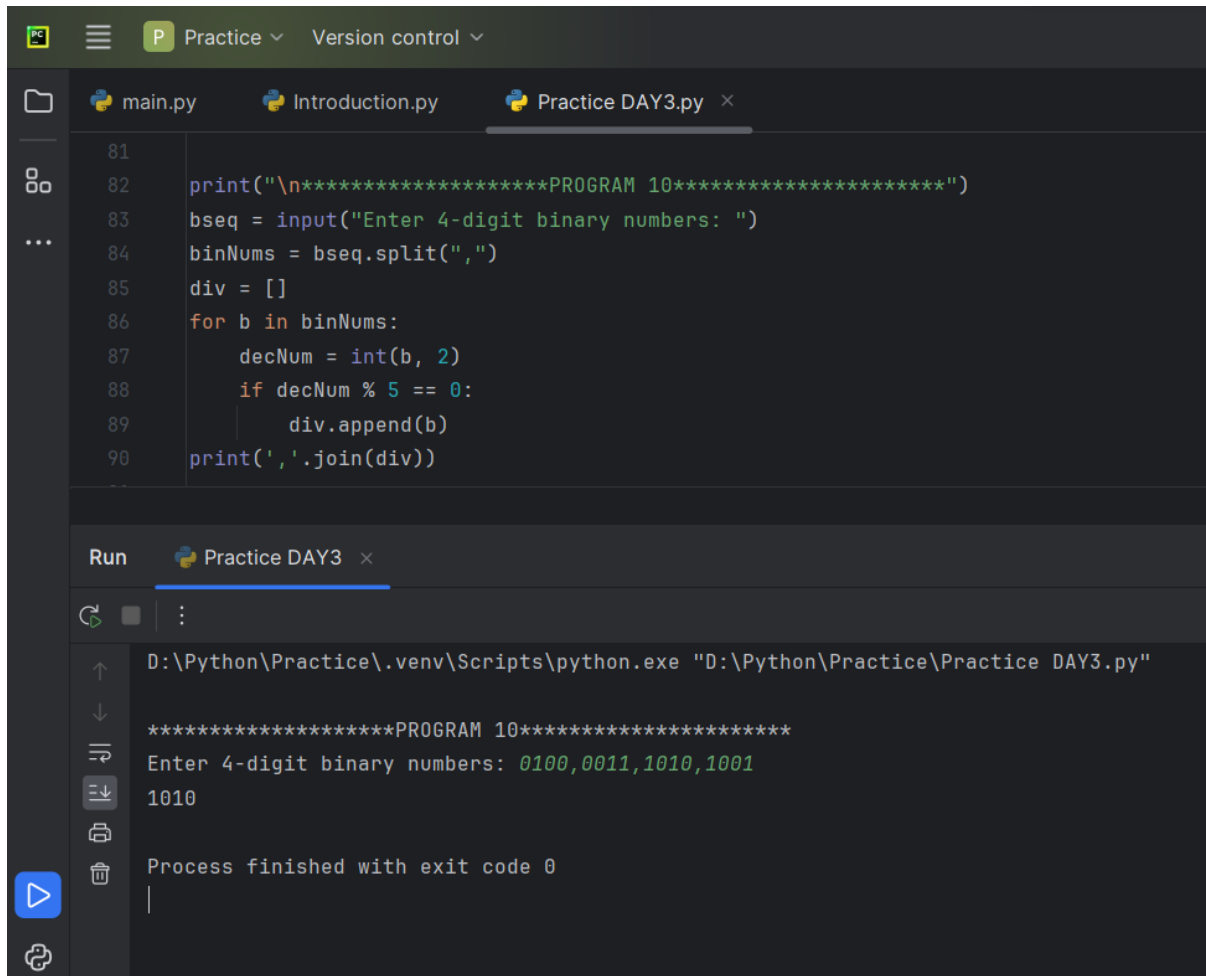
Example:

0100,0011,1010,1001

Then the output should be:

1010

Notes: Assume the data is input by console.



```
81
82 print("\n*****PROGRAM 10*****")
83 bseq = input("Enter 4-digit binary numbers: ")
84 binNums = bseq.split(",")
85 div = []
86 for b in binNums:
87     decNum = int(b, 2)
88     if decNum % 5 == 0:
89         div.append(b)
90 print(''.join(div))
```

Run Practice DAY3

```
D:\Python\Practice\.venv\Scripts\python.exe "D:\Python\Practice\Practice DAY3.py"

*****PROGRAM 10*****
Enter 4-digit binary numbers: 0100,0011,1010,1001
1010

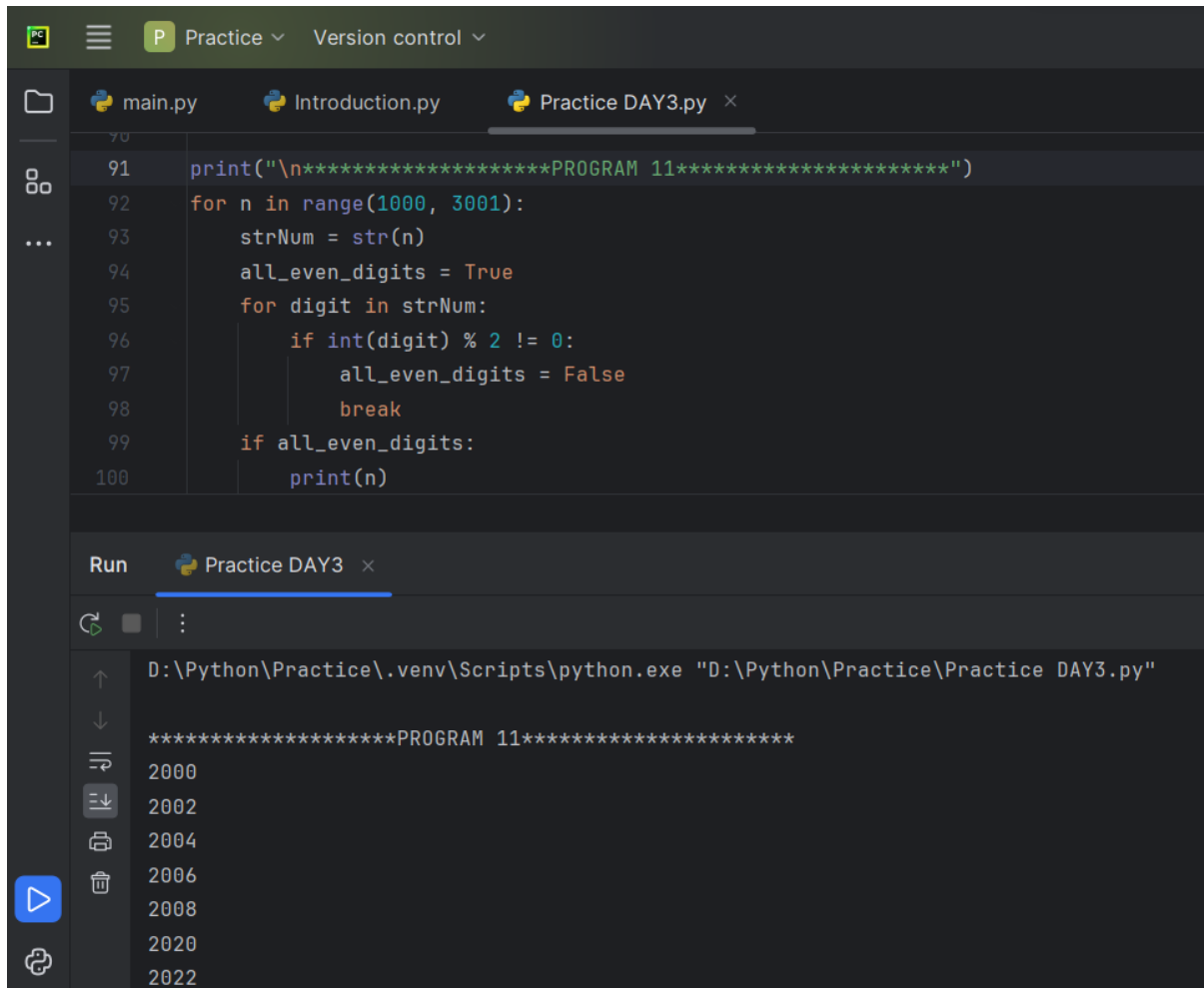
Process finished with exit code 0
```

Question:11

Write a program, which will find all such numbers between 1000 and 3000 (both included) such that each digit of the number is an even number.

The numbers obtained should be printed in a comma-separated sequence on a single line.

Hints: In case of input data being supplied to the question, it should be assumed to be a console input.



The screenshot shows a Python IDE with a file named 'Practice DAY3.py'. The code defines a function to check if a number is even and then iterates through the range 1000 to 3001, printing even numbers. The output window shows the execution results, including the program header and a list of even numbers from 2000 to 2022.

```
91 print("\n*****PROGRAM 11*****")
92 for n in range(1000, 3001):
93     strNum = str(n)
94     all_even_digits = True
95     for digit in strNum:
96         if int(digit) % 2 != 0:
97             all_even_digits = False
98             break
99     if all_even_digits:
100         print(n)
```

Run Practice DAY3

D:\Python\Practice\.venv\Scripts\python.exe "D:\Python\Practice\Practice DAY3.py"

*****PROGRAM 11*****

2000
2002
2004
2006
2008
2020
2022

Question:12

Write a program that accepts a sentence and calculate the number of letters and digits.

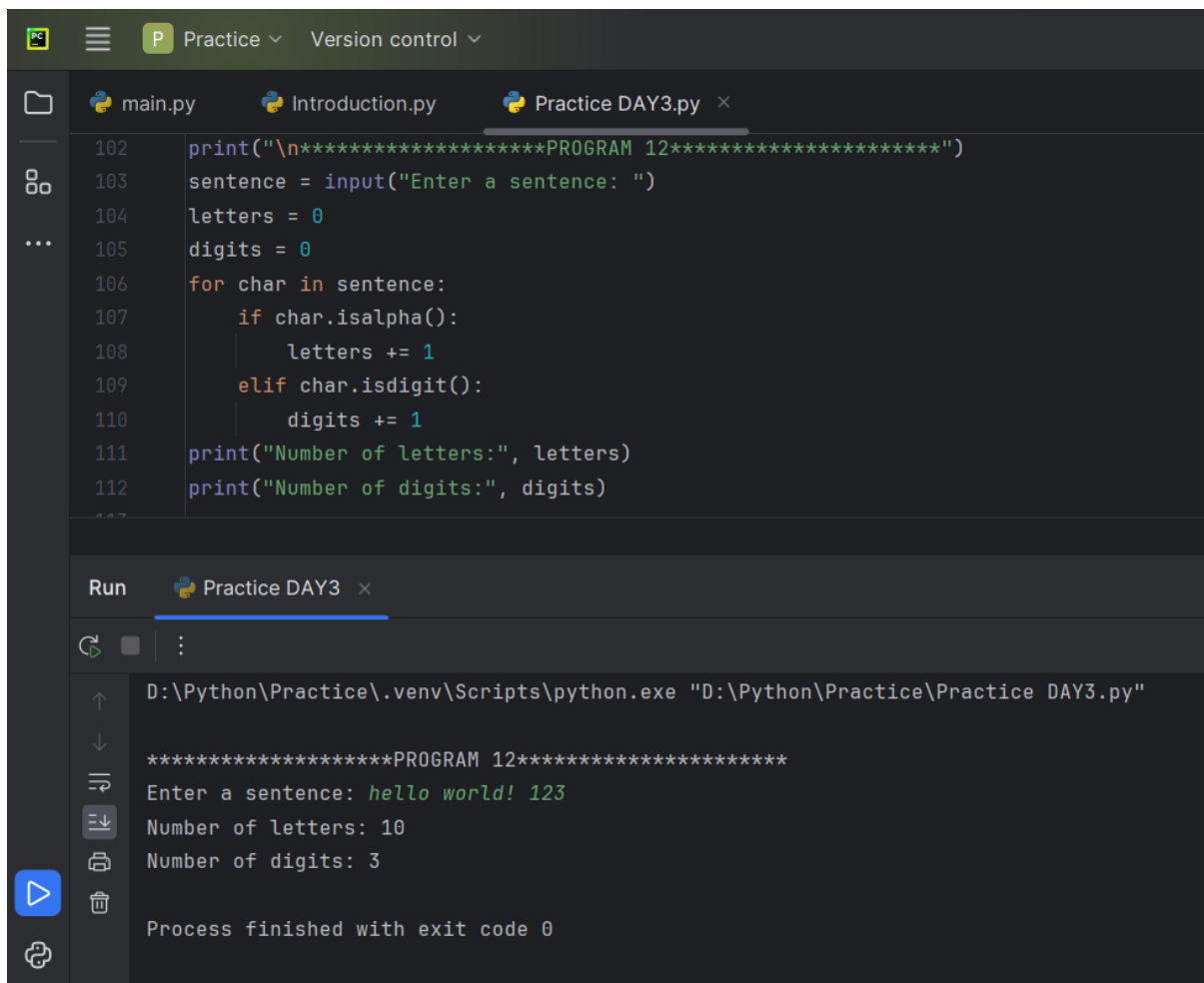
Suppose the following input is supplied to the program:

hello world! 123

Then, the output should be: LETTERS 10

DIGITS 3

Hints: In case of input data being supplied to the question, it should be assumed to be a console input.



The screenshot shows a Python IDE with a file named 'Practice DAY3.py'. The code in the file is as follows:

```
102 print("\n*****PROGRAM 12*****")
103 sentence = input("Enter a sentence: ")
104 letters = 0
105 digits = 0
106 for char in sentence:
107     if char.isalpha():
108         letters += 1
109     elif char.isdigit():
110         digits += 1
111 print("Number of letters:", letters)
112 print("Number of digits:", digits)
```

The 'Run' panel at the bottom shows the execution of the program. The command executed is 'D:\Python\Practice\.venv\Scripts\python.exe "D:\Python\Practice\Practice DAY3.py"'. The output is:

```
*****PROGRAM 12*****
Enter a sentence: hello world! 123
Number of letters: 10
Number of digits: 3
Process finished with exit code 0
```

Question:13

Write a program that accepts a sentence and calculate the number of upper-case letters and lower-case letters.

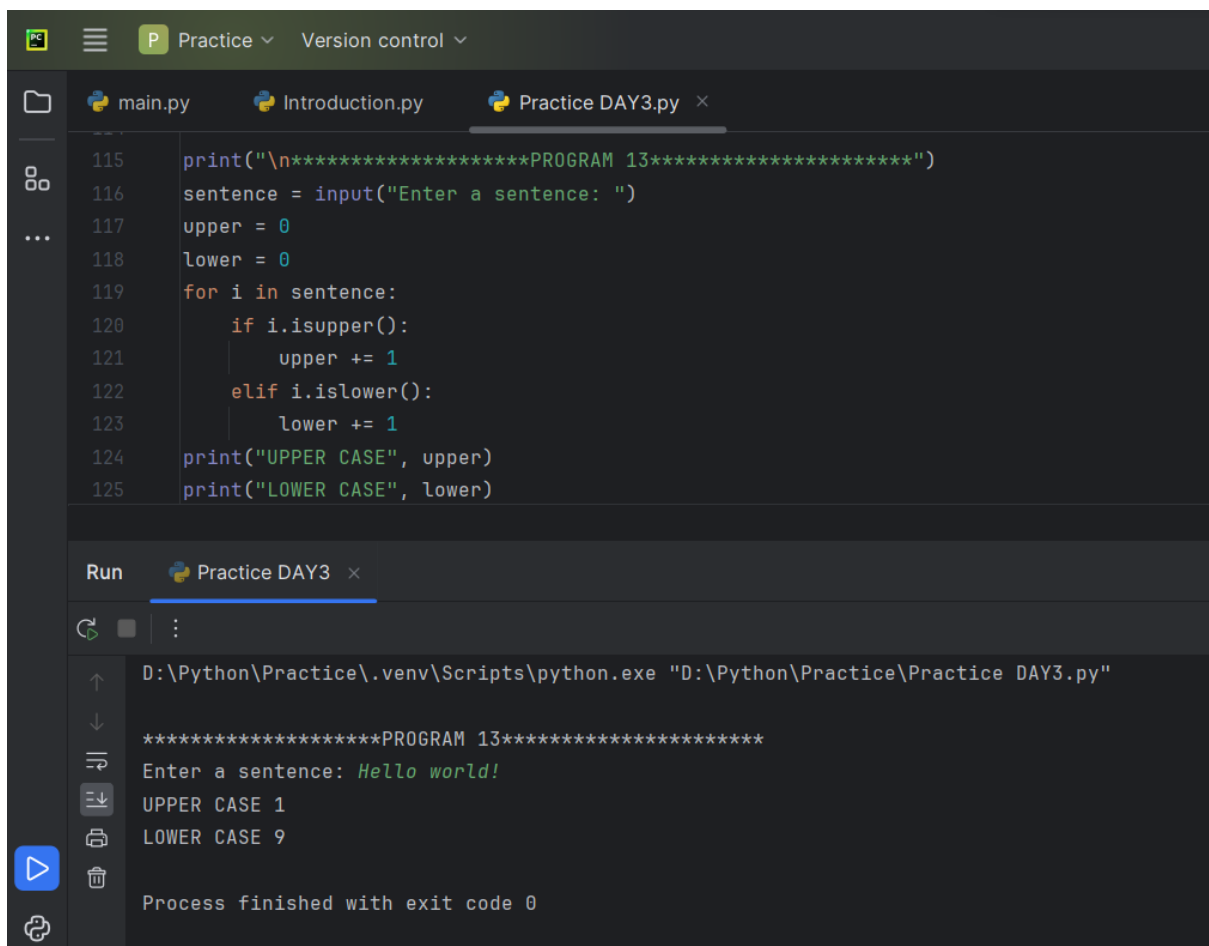
Suppose the following input is supplied to the program:

Hello world!

Then, the output should be:

UPPER CASE 1

LOWER CASE 9



The screenshot shows a Python IDE with a file named 'Practice DAY3.py'. The code in the editor is as follows:

```
115 print("\n*****PROGRAM 13*****")
116 sentence = input("Enter a sentence: ")
117 upper = 0
118 lower = 0
119 for i in sentence:
120     if i.isupper():
121         upper += 1
122     elif i.islower():
123         lower += 1
124 print("UPPER CASE", upper)
125 print("LOWER CASE", lower)
```

The 'Run' console at the bottom shows the execution of the program. The command executed is 'D:\Python\Practice\.venv\Scripts\python.exe "D:\Python\Practice\Practice DAY3.py"'. The output is:

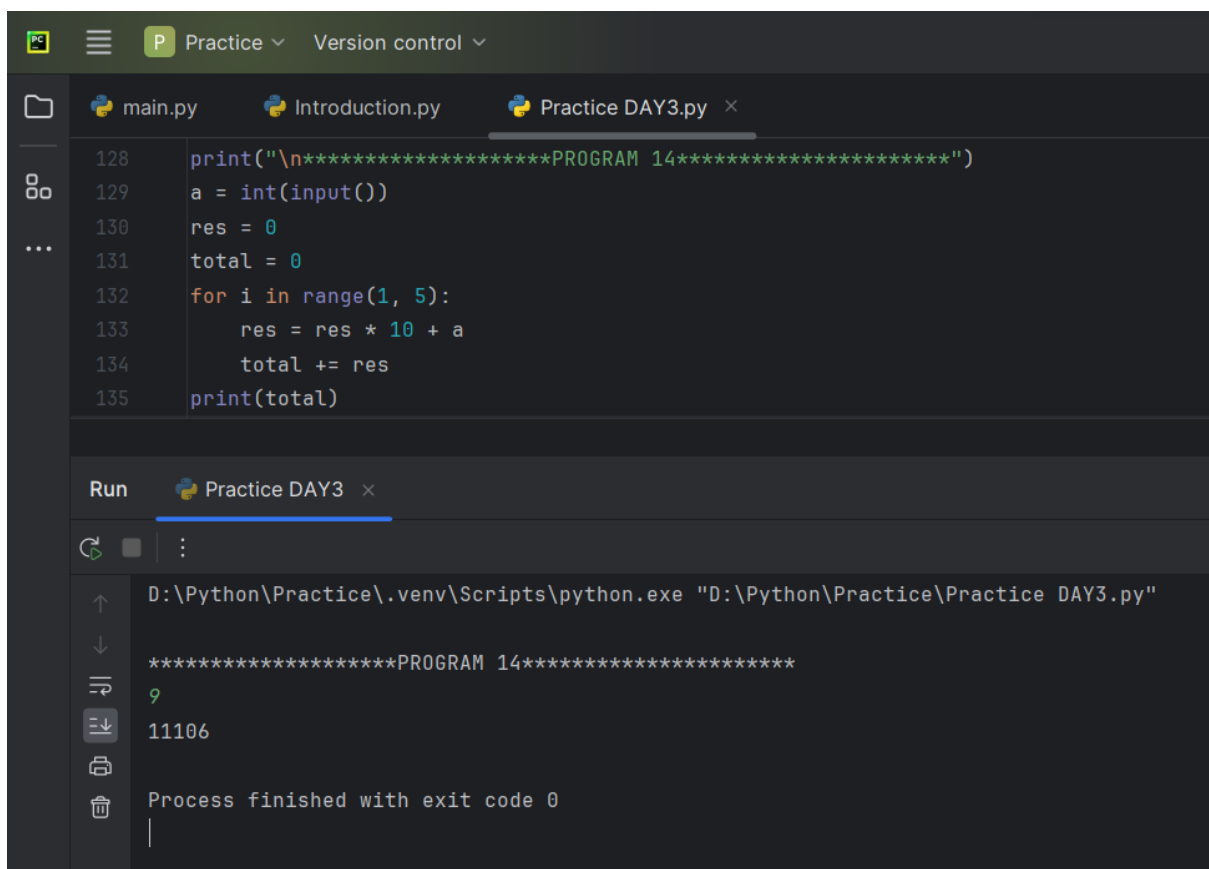
```
*****PROGRAM 13*****
Enter a sentence: Hello world!
UPPER CASE 1
LOWER CASE 9
Process finished with exit code 0
```

Question:14

Write a program that computes the value of $a+aa+aaa+aaaa$ with a given digit as the value of a .

Suppose the following input is supplied to the program: 9

Then, the output should be:11106



```
128 print("\n*****PROGRAM 14*****")
129 a = int(input())
130 res = 0
131 total = 0
132 for i in range(1, 5):
133     res = res * 10 + a
134     total += res
135 print(total)
```

Run Practice DAY3

```
D:\Python\Practice\.venv\Scripts\python.exe "D:\Python\Practice\Practice DAY3.py"

*****PROGRAM 14*****
9
11106

Process finished with exit code 0
```